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Presentation: Lessons learned case study

Basically I think any company in this industry, and one thing you have to stay focused on is how to determine if you're going to go forward. This is just a brief mission statement that we have as a company: we want to be the world's primary recycler for asset recovery and also looking at leading technology, just like Bob (Erie) talked about. If you're in this industry, you always got to figure out what's out there. If you snooze, you lose.

Eco International is a brand new company for all intents and purposes. It was formed in November of this year. It actually has very long roots though. If you notice our background is an iceberg. An iceberg is a lot deeper in the water than on top of the water, and that's really where our roots are. Eco International was formerly Amandi Services which was more or less a child of Envirocycle and NextCycle. Envirocycle was basically formed in 1990, and Envirocycle was actually formed from a company called Unique Recovery which is an IC recovery facility back in the early '80s. So the company has been around for a long time. The ownership of the company is a large, private family investment with over $500,000,000 in sales which, this is the whole reason we did the new acquisition, so that we'll be able to grow with the company. Our headquarters are actually in Vestal, NY which is where I am out of.

Documentation and security. A lesson I would put in there is IT data management. Now data management, not data destruction, but the data management that you control within your facility is a huge process. When you're talking about potential weights in and out of your facility, having a very good database or IT structure is something that you're always want to go look at. We have been actually been very fortunate and designed and built our own system that we use internally where we can actually track the product. We have some customers that will sign onto our server and request all their pickups, and they can see the material go through the process right through our system. I think a lot of customers these days are looking for that IT or large infrastructure for a company.

This map (on slide) is kind of a little deceiving from probably the back of the room. It says "our recycling facilities". We actually don't have this many recycling facilities. The ones in the yellow and the blue are actually going to be opening up this year. It actually says on the bottom "opening up in 2008," but we do have facilities in New York, Pennsylvania, Texas, California, and also Mexico. All the different facilities have different processing capabilities. Some are more or less focused on CRTs. Some just do dismantle. Some do asset recovery. What we actually do sometimes is that we actually make one facility having a niche process, and we do have our own trucking fleet which will run product in between the facilities to more or less so that we're running the same type of material and the same type of services at the facility. This can be a little bit more effective if we have certain facilities that focus on certain strengths. I was led to a gentlemen Greg (Sampson) with Earth Services, he was talking about your offices with fluorescent light bulbs, you ballasts, and your e-waste, you kind of want to keep adding services. We kind of took the same approach in the electronic industry. When we first started in '85 as Unique Recovery was basically IC recovery. In 1990 we added CRT recycling and asset recovery. 2 or 3 years ago we added commodity management, and as we kept evolving as a company, we kept adding these services to more or less stay in touch with our customers in trying to offer them the best value. I think the one thing you'll find in this industry is that you're going to have ups and downs. If you stay focused on one segment in this industry, say CRT glass or whatever, if you are not a diverse company, personally I don't think you're going to survive very long because I think any recycler will tell you that you're going to see ups and downs in all your different segments, and you'll need your other segments to carry you through those times.

This is how we handle the asset management which is a product in the sorting of the categories for potential recovery. Again I think a lot of people have talked about parts and harvest throughout the days which is kind of what this whole department does. Basically we do a refurbish in a few facilities where we get the

products down to certain technical levels to resell the product. Right now we are operating as the standard of if it does not power up, if it does not work, we do not resell it as a reusable product. We'll actually tear it down. In North America we actually do a lot of parts harvesting for some of the higher end material without going overseas. We actually do it in our operations in North America where we will actually harvest parts for some materials and sell them in secondary parts markets in North America.

The selling of the product. We use retail outlets, some websites; primarily a lot of the stuff we sell is wholesale. Primarily a lot of the stuff we sell is also wholesale, and it's primary the largest for when you sell product you're always going to want to sell the wholesale product. For certain items, product harvesting for the higher end products: CPUs, the laptops, it's putting a little extra time into it. Kind of like if you were looking at the evaluation that E-World did on their glass. You might be able to sell a product for $10, but you might be able to take that apart for $5 and sell it altogether for $25. On the parts harvesting, I think you really need to evaluate those markets and decide what is going to be better for your bottom line.

This is just a flowchart of the process (on slide). Again, I'll really focus on the dismantle side and why we kind of focus on the manual vs shredding. Mike from Goodwill brought this up, and I know this is an environmental conference, but the biggest thing to really face in this industry right now is the secure data management of personal data from hard drives. Everyone keeps talking CRTs and lead, but proper management of data is probably even higher than the environmental for the customer requirements. So focus on the environment, but also I think this is another huge segment that you really need to focus on.

The dismantling process, and at the end of this there are some points on manual vs shredding operation. We felt that the manual dismantle, just like Bob said provides a much cleaner stream, and we can categorize the commodity material so we can maximize the return on our product. The manual assembly also does comply with the federal EPA ruling which went into effect just recently. We talked about the parts harvesting, the plastics, the precious metals, it all kind of comes down to segregating your material. It's really economics. We work with our vendors. We get a certain spec, and that's what we produce every month for them and ship to them.

This is kind of a flowchart of the process which I just outlined. All the materials come in and we separate the coppers, the printers, the circuit boards, the boards, and the wire. There is an actual more detailed flowchart on the CRTs. We have been recycling CRTs since 1990. I started with the company in 1995. I also started working with the EPA and the Common Sense Initiative which was actually where the CRT ruling more or less came from. That's where the roots of it came from. So we've been working with the EPA on the ruling, or assisting because there are a lot of people and groups involved in that. We've gone through several different phases through our process, and this goes back to what Bob said too: we had to produce a quality product for the market to buy it. There were 4 glass manufacturers in North America. There was Sony, Technaglass, there was Asahi, and the only one Bob missed was Thompson. They all had a different spec than the glass. So we used to have a process where we would process mass volumes of mixed glass. Basically we would process a ton of glass every 12 minutes, and we could process that glass into a speck that the glass furnaces required. As the material now moves and the furnaces start getting smaller and smaller, their specks are getting tighter and tighter because I think they realized that they do have a bit of leverage. It's not like you can shop your glass down to 10 or 12 companies, you can only shop your glass to 5 or 6. So the restrictions of the glass have really gotten tighter in the last few years. We actually made a complete reversal. We don't have the machine that was explained up here, but we designed our own machine that basically does a similar operation. Even though we're doing mass volumes, well over 10,000,000 a year, we're still separating all our tubes manually because if we don't do it that way, it's going to be a 1.2 or 1.7 million disposal cost at the end of the year. So for us it is a very economical solution. It's better for us to put that extra time into it verses to pay the disposal costs. Plus by separating the glass, Rutgers and NJIT [New Jersey Institute of Technology] did several research studies on altered solutions for CRT glass years ago, and the one thing if you looked at any of the research Reggie and his group did was that in order to be able to reuse the CRT glass in alternative solutions, the only way it was determined it could be is if it was separated or cleaned. So I'm still a believer that when the CRT market goes away, the only way you'll be able to do anything with the glass besides a primary lead smelter or hazardous landfill, is if you're separating the glass and cleaning it, you'll have several options open to you. Plus if you look at

the glass weight, if you take a half million pounds of CRT glass that comes from wherever basically out of that half a million pounds of glass, 35% of it will fail the T-clip [sp?]. 65% of it can be disposed of it can be disposed of it in a local landfill because it has no lead or the lead content is so low that it will not fail the TCLP. So even if worse came to worse you only have to take 35% of your product and manage it properly. This is kind of just a glass process that I was talking about. There are different glass chemistries out there. That's why when I said 35% truly only needs to be managed hazardously if it ever had to go to another solution. Basically you have the glass separation of the funnel and panel which is where your lead content is. You also have leaded panel glass which is no lead and leaded. Even if it's leaded it won't fail the TCLP because it's well under 2%, and the same thing with monochrome as well under 2%. So that's really the different types of glass in our process. For us, we determined the one thing that you're going to find is the collection of your product.

The top part is collection which is why I'm going to talk about it. The collection of e-waste is probably the most difficult thing you're probably going to try and figure out. I think processing -- you guys can learn from the mistakes of your friends from the North. I think you're going to find very easy ways to process the e-waste, but I think the one thing that we still haven't truly figured out the collection. I don't think there is going to be any single collection method that is going to be best. That's why we actually have several different collection methods. We are the preferred recycler for Staplers. We are managing that entire program. We are working with a couple of other retailers on similar programs. We have a mail back program with another computer manufacturer. We have collection events that we host in partnership with other retailers and manufacturers, and we also have collection events that we partner with municipalities. That's what you need to do to survive. You really need to have multiple collection streams and systems in order to get the waste in.

The stuff I talked about already is all the steel and the metals. Dismantling vs shredding. We have evaluated it several times looking at shredding our material. We found that manually disassembling, in our opinion, is the best way to go. These are just a couple of points, and I might actually talk on a couple of other ones. Basically the loss of material in the shredding operation when you shred material, an expert said to me and he didn't have an exact number but a good percentage of loss is going into the fluff because when you first break it down you have to do it at a high torque speed. It actually sometimes vaporizes the smaller copper elements where if it was going through certain types of shredders you can have a higher recovery of those coppers. Certain systems are designed for certain products. Some shredding operations are designed more or less to handle certain products and recover those elements from those products. That is kind of what we do. We ship some of our products to Canada for shredding. We ship some of it to Europe for shredding, and we actually ship some of our product to Asia for shredding. We get the product to a stream, and we found the best customer for that material. We feel that you get a much higher recovery on your commodities by separating your material like Bob said, so you don't have to kick out all this fluff and other stuff. You find people who specialize in that product, and you'll get a higher return on it. The biggest reason we never looked at shredding is because the minute you shred that monitor or TV you really only have a couple of options for your glass: the lead smelter, hazardous landfill, or if you can get someone to take it overseas. Those really are your only options, and you're really limited on those options. That's one of the bigger reasons we never really looked at the shredding. The other reason is that shredding is a very high investment. So if you're running an operation, you are going to have a depreciation expense that's going to be very high. It means that you need to move through X amount of millions of pounds of month in order to cover that investment justification. So that means that you need to have high volume and a steady volume in order to keep that shredder running at a consistent rate.

This (on slide) is a CRT recycling operation in India. They take the glass, dump into a tub of water with acid, and let it sit for an hour and a half, then pull the pieces out one by one and sort it. I talked to Joe about this last night, and he told me these pictures are all within a year and a half. This isn't a 7 year old picture or a 10 year old picture; this is within the last year and a half. This is why it is also important that you more or less audit your backend vendors.

This was an operation he visited in China. He could probably explain the process better than I can, but basically they are cleaning the glass somehow and then dumping it on the ground. You can tell by the bigger pieces that they are not dropping it very far because they're trying to keep the pieces as big as

possible. They realized the farther you drop it, the more fines you are going to create. If you look at Bob's pictures with his HEPA filters and everything else, you just have people standing there just sorting glass. This was actually in China. We do have a Chinese operation, but we haven't decided what we're going to do with it. This was taken by one of the people who worked for our Chinese operation. Basically they were just loading the glass onto a table, let it go down a little chute, pull off all the contaminations, and try to come up with a quality product that they could sell somewhere. The picture in the back is actually a pile of clean glass. That's what this person is doing is actually cleaning glass in a tub. It's actually a good process to clean the glass, so I'm not going to knock the process. It's more or less a tumbling operation. It's like Dlubak[sp?] which is a large glass recycler in North America. We actually have similar technology now, and there are a couple of other companies in the world that use similar technology but different equipment, but the tumbling operation is a very acceptable operation. Again, if you notice it's all outside with nothing covered.

This is glass (on slide) that comes from our operation. All these guys are trying to do is get glass that more or less looks like this. In all those pictures, they are trying to produce the same thing which is this. Unfortunately in our hindsight when we invested in our Chinese operation, we actually built what we thought was a state of the art glass recycling operation that could process around 6,000 tons a month of mixed glass. We built this plant to do all our glass processing for all our plants in North America. Unfortunately when the new rule came out, these pictures are actually the construction of the plant. It had only been in operation for about 6 months when the new rule came out. So after the new rule came out, we had to rethink our strategy. We thought what could we do and what's the best solution for us. We started brainstorming and basically went back to the manual separation in the U.S. was more cost effective. This plant in China used to employ 300 people, and at this point we're all pulling it back to North America and Mexico. We had a different process than you saw in those pictures. It was really what I consider a very nice operation. I didn't see it in person but in pictures and videos. It was set up where all the glass would be sorted through the different glass types by hand sort. It was more or less a pick line where you would pick a certain product off the line. The two large machines that you see at the top are basically separators. They were screen separation systems that would actually separate the larger pieces from the smaller pieces. Basically it mostly separated the panel and the funnel which made the picking easier. The building on the right is where the building is and that's where the glass line was installed. The building on the left is Chinese Customs and environmental enforcement. Probably not the best place to put your plant, but we never had a problem with it. So they could look out the window and actually look at the plant. Right now we're using Asahi, HEG and VideoCon. They are three of the glass manufacturers that we're currently working with. There are more out there. We use several markets in North America and Europe.

I think Eric mentioned earlier is that copper is driving this industry right now, and I agree with that statement. The reason why we're shipping some of our product to Europe is that the copper demand is so high and these shredders just want to capture that copper. We are working on some projects here in North America for the plastic. We also send most of it through Asia. We also have a byproduct of our process. As John had in his presentation, we have wood and some other stuff that needs to be disposed of. Barriers with NAFTA countries, and again Joe is more of the legislation person, but with us having facilities in the U.S., Mexico, and some within 100 miles of Canada, we actually have product shipped down from Canada and product shipped up. I'm not sure access to countries legislation is something that is a little bit easier for this material so maybe it could move freely. Somebody brought this question up earlier through one of the speakers about maybe having NAFTA manage it. An interpretation of current legislation and regulations like we're all wearing these ear pieces today there is definitely a language barrier. We got Spanish down here. English up there and in Canada you got English and French. I think if anyone here ever tried to interpret a letter or whatever, there are some words that are lost in translation. So it's definitely an issue going forward that I think that needs to be looked at.

So that's Joe's contact information (on slide). I appreciate everyone's time, and if anyone has any questions I'll be more than happy to answer them.